External Public Review Comment Matrix

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AIR-623	TSO-C90e Unit Load Devices	**Jamie Lessard**		

	Commenter	Section # and Page #	Comment	Suggested Change and Rationale	Disposition
1.	Jay Burkett, Airbus	General Comment	Airbus is completely convinced that NAS3610 Type I ULDs no longer exist (except for possibly the NAS3610-1B6P). NAS3610 and AS36100 should be use fully independent from each other.	Airbus proposes to strictly differentiate between both ULD-standards and to avoid any "cross-link" between them.	Concur. Refer to introductory paragraphs to section 3, which makes this distinction clear.
2.	Dick McLennan	General Comment	There was no reason to change type 1 units approved under NAS3610. There was no reason to change type II units approved under NAS3610 either.	AS36100 should be an option only, for approving Type II ULDs, not a requirement.	Non-Concur. Refer to AIR36108 "AS36100 Background and Development Record" for an explanation of why SAE AGE-2 has migrated to developing and supporting AS36100 to be used for Type 2 ULDs approvals.
3.	Jay Burkett, Airbus	General Comment	Sizes Codes C, D, E, F, H, I, J & O were intentionally omitted from AS36100. NAS3610 Size Codes D, E, H, J have been in use is the not to recent past. How will new versions of these ULDs be addressed since they	Please address the answer to our question in a new appendix to the new TSO C90 issue.	Non-concur. Will take this request under advisement for TSO-C90f; would need to work on a new appendix or standards content within the consensus

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			are not included in AS36100?		standards format. AS36102 does provide testing requirements for Size Codes not found in NAS3610 and AS36100.
4.	Manoj Menon, Emirates Airline	Section 2.a., page 1	More clarity needed on existing models under previous TSO C90. Existing models cannot be discontinued.	"ULDs manufactured under earlier TSO may still be manufactured under its original approval' Rationale - Some models were designed/ manufactured to meet specific requirements. Will these need recertification for additional manufacturing ? Also the situation of spares for existing ULDs is not clear	Concur. Added a paragraph 2(b), which was removed in error from this revision and was originally in TSO-C90d. "ULDs approved under a previous TSOA/LODA may still be manufactured under the provisions of its original approval".
5.	Ulf Hartmann, Safran Cargo	Section 2.a., page 1	Paragraph 2.b. from TSO-C90d is missing	Add back the paragraph 2.b. that was in TSO-C90d Rationale: now allowing for ULDs previously approved to still be manufactured would	Concur. See disposition to comment 4.

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				lead to a collapse of the ULD industry as older ULDs and their spare parts could no longer be manufactured	
6.	Alexander Bayer, Lufthansa Cargo	Section 2.a., page 1	Does this mean no production of TSO-C90d is possible? Spare parts? Or does it mean that only new constructed ULD can't be certified according to C90d?	Suggest allowing for grandfathering for old certifications.	Concur. See disposition to comment 4.
7.	Arjan van der Kraan, KLM Cargo	Section 2.a., page 1	1) The section has 2.a only; is 2.b deleted by mistake? 2) With only 2a, the consequences for ULDs approved under previous TSO are not clear. Can they still be manufactured in 18 months after the publication date of this TSO-C90e? 3) With only 2a, the consequences for Operators/ ULD owners owning ULDs approved under previous TSO are not clear. The service life of a correctly handled and properly maintained aircraft ULD could be much longer than 18 months, can Operators still use ULDs approved under previous TSO in 18 months after the	Suggest that the following text from TSO-C90d 2 b. be retained: **b. ULDs approved under a previous TSOA/LODA may still be manufactured under the provisions of its original approval.** The rationale is to improve clarity in Section 2 and • avoid potential loss in the air transport industry, which has already been badly hit by the COVID-19 pandemic, + • avoid waste of natural and industrial resources, in a time in which (also) the	Concur. See disposition to comment 4.

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			publication date of this TSO-C90e? 4) If the answers to the above 2) and 3) are No,the impact on the industry would be huge in 18 months after the publication date of this TSO-C90e, e.g. ULD manufacturers would have to stop the manufacture of previously approved ULDs and Operators would have to scrap all their ULD asset approved previously. This is estimated for more than 1.1 million units at about USD$ 1.5 billion total replacement value industry-wide.	airline industry is criticized for its environmental footprint. It is also going against US policy in this respect.	
8.	Jean Paul Leval	Section 2.a., page 1	1) Section got 2 a. only, is 2 b. Need clarification if deleted by error? 2) With only 2 a. what would be the consequences for ULDs already approved under previous TSO. This is not clear. Can they still be manufactured in 18 months after the publication date of this TSO-C90e? 3) With only 2 a. The consequences for ULD owners owning ULDs approved under previous TSO are not clearly mentioned bringing a lot of additional questions. The lifetime when properly handled and	Suggestion that the following text from TSO-C90d 2 b. b. ULDs approved under a previous TSOA/LODA continuous to be manufactured under its original approval. Clarity is essential in order to protect the Air industry that has already suffered a lot due to COVID19 pandemic.	Concur. See disposition to comment 4.

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			maintained ULD is much longer than 18 months. Can Operators still use ULDs approved under previous TSO 18 months after the publication date of this TSO-C90e? 4) If the answers to the above 2) and 3) are negative, then the impact on the industry would be so big 18 months after the publication date of this TSO-C90e. ULD manufacturers would have to stop the production of existing already approved ULDs and Operators would have to scrap them all. On the economical point of view it will have a huge impact because if we look at the current fleet the estimation is more than 1.1 million units at about USD$ 1.5 billion total replacement.		
9.	Gabriella Tamasi	Section 2.a., page 1	The section has 2 a. only, was 2 b removed intentionally? With only 2 a in place what is the intention for ULDs	Suggest that the following text from TSO-C90d 2 b. be retained:	Concur. See disposition to comment 4.

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			approved under previous TSO? Can they still be manufactured after 18 months after the publication date of TSO-C90e?	*b. ULDs approved under a previous TSOA/LODA may still be manufactured under the provisions of its original approval.*	
10.	Ulf Hartmann, Safran Cargo	Section 3, page 1	Modify the sentence "This TSO includes flammability requirements to enable a ULD to be additionally classified as a Fire Resistant Container".	Replace the sentence with "This TSO now also includes flammability requirements…". Rationale: To stress the main difference from TSO-C90d	Concur. Deleted this sentence and added the following sentence to the end of Section 1 PURPOSE: "This TSO also includes requirements to enable a ULD be additionally classified as a Fire Resistant Container (FRC)."
11.	Jean Paul Leval	Section 3, page 1	For a better understanding the first paragraph of Section 3, "This TSO includes flammability requirements to enable a ULD to be additionally classified as a Fire Resistant Container (FRC).", should not be placed at the beginning of the section because: • the requirements immediately listed below are all for standard	Suggestion 3 a. Functionality. be redrafted as follows: This TSO's standards apply to ULD intended to group and restrain cargo, stores, baggage and mail on aircraft. It also applies to FRCs used to improve fire protection in aircraft cargo compartments	Concur. Regarding your suggested change for 3.a., refer to comment 22 below to see how this language was adopted. Your comment does not match the suggested change. However, the comment was

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			ULD • (on top of Page 2) "New models of FRCs manufactured on or after the effective date of this TSO must meet all applicable ULD requirements and the requirements in:" Already mention it		resolved in comment 10 above.
12.	Ulf Hartmann, Safran Cargo	Section 3, pages 1 and 2	Modify each sentence that contains "New models [article] manufactured…"	Replace with "New models of [article] identified and manufactured…" Rationale: Using only "manufactured" means that articles certified to previous TSOs would now have to meet other requirements than how they had been tested	Concur. Replaced all instances with "[Article] approved under this TSO….". This correction in conjuction with Section 2 APPLICABILTY should resolve the comment and add clarity.
13.	Jean Paul Leval	Section 3, pages 1 and 2	The proposed TSO-C90e adds requirements specifically for FRC but also modifies requirements for standard ULD; some requirements in Section 3 brings confusion because the way it is written make a confusion between	The requirements for all ULD (including FRC) and requirements for FRC only should be presented separately.	Partially concur. Section 3 page 1 already presented the applicable standards for ULD and FRCs, separately.

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			standard ULD and FRC It looks that they are mixed, this brings confusion in interpretation and reference. Requirements for all ULD (including FRC) and requirements for FRC only should be clearly separated.		Based on several comments, a table has been added to 3.d. to make the flammability requirements clearer between FRCs, ULDs, and their various components. Based on several comments, Section 3.c. has been rewritten to make the requirements for FRCs and ULDs clear and distinct: (1) For ULDs and FRCs, consider the potential for environmental degradation due to aging, ultra-violet (UV)-exposure, weathering, etc. for any materials used in the construction of pallets, nets and containers. Where applicable, testing should take into account the requirements of the latest version of the RTCA DO-160 standard, and be accordingly subject to an Environmental Qualification

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					Form identifying the performed tests. Note: Refer to RTCA DO-160 Appendix A for Environmental Qualification Form. EUROCAE ED-14 is equivalent to RTCA DO-160 and may alternately be used. (2) For textile performance of nets, see SAE Aerospace Information Report (AIR) 1490C, *Environmental Degradation of Textiles*, dated April 2019, for available data for textile performance when exposed to environmental factors. These data will be taken into account for consideration of the effects of environmental degradation on nets commensurate with the expected storage and service life to satisfy SAE AS 36100 Rev. C, Paragraph 4.11. **NOTE:**

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					Environmental degradation data other than that documented in AIR1490C may be used if you substantiate the data and it is approved by the FAA aircraft certification office (ACO) manager responsible for administering your TSO or LODA. A net must meet the minimum performance requirements of this TSO at any time during its service life. (3) FRCs shall meet the additional environmental requirements in AS8992

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					paragraphs 3.6 and 4.2.
14.	Arjan van der Kraan, KLM Cargo	Section 3, pages 1 and 2	In general, it is understood that the proposed TSO-C90e not only adds requirements specifically for FRC but also amends requirements for standard ULD; some requirements in Section 3 were drafted in a way that requirements for standard ULD and FRC are mixed, which would create confusion in interpretation and reference. The requirements for all ULD (including FRC) and requirements for FRC only should be distinguishably separated so that it is clear and easy to comply with.	The requirements for all ULD (including FRC) and requirements for FRC only should be distinguishably separated so that it is clear and easy to comply with.	Concur. See disposition to comment 13.
15.	Gabriella Tamasi	Section 3, pages 1 and 2	In general, it is understood that the proposed TSO-C90e not only adds requirements specifically for FRC but also amends requirements for standard ULD; some requirements in Section 3 were drafted in a way that requirements for standard ULD and FRC are mixed, which would create confusion in interpretation and reference. The	The requirements for all ULD (including FRC) and requirements specific to FRC only should be separated in a better way.	Concur. See disposition co comment 13.

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			requirements for all ULD (including FRC) and requirements for FRC only should be clearly separated to support the industry and enable users to comply with the standard.		
16.	Arjan van der Kraan, KLM Cargo, Gabriella Tamasi	Section 3, page 1	To avoid confusion, the first paragraph of Section 3, "*This TSO includes flammability requirements to enable a ULD to be additionally classified as a Fire Resistant Container (FRC).*", should not be placed at the beginning of the section because: • the requirements immediately listed below are all for standard ULD • (on top of Page 2) "*New models of FRCs manufactured on or after the effective date of this TSO must meet all applicable ULD requirements and the requirements in:*" serves the purpose already.	The first paragraph of Section 3 be either deleted, or, if it has to be retained, be kept at the end of Section 1. PURPOSE. but more general rather than flammability requirements only, e.g.: *This TSO also includes additional requirements for Fire Resistant Container (FRC).*	Concur. See disposition to comment 10.
17.	Frank Steinert	Section 3 paragraph 3, page 1	TSO-C90e allows for applications for new models of ULDs under TSO-C90d for up to 18 months after publication of	Suggest to rephrase this to read: "Models of Type 2 ULDs approved under this	Concur. Refer to disposition for

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			TSO-C90e. Therefore the statement "New models of Type 2 ULDs manufactured on or after the effective date of this TSO…" would not be correct.	TSO…"	comment 12.
18.	Chris Browne, Amsafe Bridport	Section 3, paragraph 4, page 2	Section 3 states ULDs must meet the requirements in SAE AS36102B. The net pre-conditioning requirements detailed in Section 4.4.1 of SAE AS 36102B are not practical in a real test. The thermal mass of a pallet net is so small that even if pre-conditioned as described the pallet net will rapidly adopt the conditions that exist in the test environment. The size of pallet nets and loads make it impractical to complete this testing in an environmentally controlled chamber.	Change requirement from "must" to "should". This will allow for justification where implementation of a test pre-condition that is nugatory can be removed under justification. Rationale is requirement introduces unnecessary expenditure into the development costs.	Concur. Sentence now reads: "Testing methods that support compliance with the requirements in AS36100C and NAS 3610 are found in:"
19.	Jay Burkett, Airbus	Section 3, paragraph 4, page 2	*"New models of both Type 1 and Type 2 ULDs manufactured on or after the effective date of this TSO must meet the requirements in:* • *SAE AS36102B, Air Cargo Unit Load Devices – Testing Methods, dated March of 2017, as applicable."* Airbus comment: AS36102B refers only to AS36100.	Please clarify how to apply AS36102B on ULD TYP 1.	Refer to disposition to comment 18.

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			There are no ULD Type I configurations shown in AS36100.		
20.	Frank Steinert	Section 3 paragraph 5, page 2	For consistency with previous comment on Paragraph 3, and for simpler understanding, I would recommend modifying the sentence "New models of FRCs manufactured on or after the effective date of this TSO…" to read (see next column).	"Models of FRCs approved under this TSO…"	Concur. See disposition to comment 12.
21.	Tom Pherson	Section 3	It should be clear that "New models" refers in all cases to ULDs and FRCs that receive certification after the effective date of TSO-C90e. All existing ULDs and parts certified under previous revisions can continue to be manufactured under the regulations in the TSO that they were approved under.	Clearly separate requirements for ULDs and FRCs	Concur. See disposition to comment 12.
22.	Arjan van der Kraan, KLM Cargo, Gabriella Tamasi	Section 3.a., page 2	The proposed wording could be further improved, e.g.: • "equipment" should read "ULDs" because the whole TSO is for ULD; • "to hold" could read "to group and restrain" to align with IATA ULD definition;	Suggest 3a. Functionality. be redrafted as follows: *This TSO's standards apply to ULDs intended to group and restrain cargo, stores, baggage and mail on aircraft. It also applies*	Concur. "This TSO's standards apply to equipment intended to hold cargo, stores, baggage and mail on aircraft. It also applies to ULD containers used to improve fire

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			• "ULD containers" should read "FRCs", because a ULD container used to improve fire protection doesn't necessarily make it an FRC whereas it refers to FRC here.	*to FRC used to improve fire protection in aircraft cargo compartments.*	protection in aircraft cargo compartments (FRCs)." Has been replaced with: "This TSO's standards apply to ULDs intended to group and restrain cargo, stores, baggage and mail on aircraft. It also applies to FRCs used to improve fire protection in aircraft cargo compartments."
23.	Ulf Hartmann, Safran Cargo	Section 3.c., page 2	This section is not correct.	For standard ULDs, the same content should be shown in TSO-C90d. SAE AS8992 is ONLY applicable for FRC and not for any standard ULDs.	Concur. See disposition to comment 13.
24.	Jean Paul Leval	Section 3.c., page 2	"ULDs and FRCs" – FRCs are also ULDs The proposed text requires standard that is specifically for FRC, the AS8992 3.6 and 4.2, to be equally applicable to all standard ULD, is it the intention of the proposed TSO-C90e? If Yes, then the beginning should read "ULDs including	Re-shuffle as follows: 1) The requirements for all ULD (including FRC) and requirements for FRC only should be presented separately. 2) Suggestion 3 a.	Concur. See disposition to comment 13 and 22.

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			FRCs shall meet ……"; and if Yes, it would be more reader-friendly by listing all the exact requirements rather than referencing to the FRC standard; if No, then as mentioned before, requirements for all ULD and requirements for FRC only should be listed separately.	Functionality. be redrafted as follows: This TSO's standards apply to intended to cargo, stores, baggage and mail on aircraft. It also applies to used to improve fire protection in aircraft cargo compartments 3) Suggestion 3. c. Environmental Qualification. be reshuffle as follows: <u>Option 1:</u> ULDs including FRCs shall meet the following environmental requirements: (Listing all the environmental requirements contained in the TSO-C90d) FRCs shall meet additional environmental requirements in AS8992 paragraphs 3.6 and 4.2.	

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				Option 2: ULDs including FRCs shall meet the following environmental requirements: (Listing all the requirements extracted from AS8992 paragraphs 3.6 and 4.2.; however, all the references to "FRC" should be changed to "ULD"; it might be taken into consideration that the requirements should be incorporated into AS36100 in the future)	
25.	Arjan van der Kraan, KLM Cargo Gabriella Tamasi	Section 3.c., page 2	Environmental Qualification.: • "ULDs and FRCs" – FRCs are also ULDs • The proposed text requires a standard that is specifically for FRC, the AS8992 3.6 and 4.2, to be equally applicable to all standard ULD. Is that the	Suggest that 3. c. Environmental Qualification. be reorganized as follows: Option 1: *ULDs including FRCs shall meet the following environmental*	Concur. See disposition to comment 13.

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			intention of the proposed TSO-C90e? If Yes, then the beginning should read "ULDs including FRCs shall meet ……"; and if Yes, it would be more reader-friendly by listing all the exact requirements rather than referencing to the FRC standard; if No, then as mentioned before, requirements for all ULD and requirements for FRC only should be listed separately.	*requirements:* (Listing all the environmental requirements contained in the TSO-C90d) *FRCs shall meet additional environmental requirements in AS8992 paragraphs 3.6 and 4.2.* <u>Option 2:</u> *ULDs including FRCs shall meet the following environmental requirements:* (Listing all the requirements extracted from AS8992 paragraphs 3.6 and 4.2.; however, all the references to "FRC" should be changed to "ULD"; it might be taken into consideration that the requirements should be incorporated into AS36100 in the future)	

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26.	Tom Pherson	Section 3.c. page 2	AS8992 applies only to FRC. Environmental requirements for ULDs are specified in other documents.		Partially Concur. Refer to disposition for comment 13.
27.	Frank Steinert	Section 3.c. page 2	AS8992 is only applicable to FRC, not (standard ULDs)	I would recommend to remove "ULDs and" from this sentence and include the relevant statement from TSO-C90d for ULDs as a separate paragraph.	Partially Concur. Refer to disposition for comment 13.
28.	Chris Browne, Amsafe Bridport	Section 3.c., page 2	ULDs to conform to environmental requirements detailed in AS 8992 paragraphs 3.6 and 4.2. There are a number of tests that cannot be completed on pallet nets. For example 3.6.2/3.6.3 notes puncture resistance, this is not possible to test on pallet nets. 3.6.3 also states an expiry date shall be defined where fire containment performance cannot be guaranteed. Pallet nets do not contain fires, so expiry date would not be possible. 4.2 specifies above mentioned puncture test.	Suggest a more appropriate standard be referenced, or specific testing requirements for ULDs be extracted into C90e. Rationale is pallet nets cannot comply with standard as written.	Concur. Refer to disposition to comment 13.
29.	Nordisk Aviation	Section 3.c., page 2	- Shall flame penetration test (Part III) be performed for non –metallic material	Add clarification in Appendix 3 in regards to using	Refer to AS 8992 Section 3.6.3, which makes this

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	products		according to ISO 14186 part 6.1.3.2 after UV/Humidity, Abrasion and Fungus test? - Does it apply to FR material only or to all materials?	flammability requirement Part III test for environmental qualification of non-metallic material.	requirement clear for FRCs. At this time, the same requirement is not in place for a "standard ULD". This issue will continue to be discussed within SAE AGE-2.
30.	Maurice Thran, DoKaSch GmbH	Section 3.c and d, page 2	It is unclear why and how exactly the requirements of paragraphs 3.6 and 4.2 of AS8992 should apply to standard ULDs. Specifically, if materials used in standard ULDs also need to be tested according to the regimen described in paragraph 3.6, where flammability testing surpassing current requirements for standard ULDs needs to be done. If this is the case, i.e. the same flammability testing needs to be done for standard) ULDs, it is unclear why there is a need for two categories.	Clarification if and how exactly requirements of AS8992 shall apply to non-fire-resistant containers.	Concur. See disposition to comment 13.
31.	Maurice Tran, DoKaSch GmbH	Section 3.d., page 2	It is unclear if the given flammability requirements shall apply to standard, non-fire-resistant ULDs as well. If this is the case, it is unclear why there is a need for a dedicated FRC category.	Clarification if the given requirements apply to non-fire-resistant containers as well.	Concur. See disposition to Comment 13. Note: The material-level

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					flammability requirements for Standard ULDs have been changed from TSO-C90d. Standard ULDs do not need to meet the assembly-level flammability test, however. Hopefully the disposition improves the distinction between the requirements.
32.	Tom Pherson	Section 3.d., page 2	Flammability requirements for ULDs are currently defined in e-CFR Title 14, Chapter l, Subchapter C, Part 25, Subpart l, Appendix F, Part l (a) (iv) and (b) (5) It has been my understanding that these new requirements apply only to FRCs. It would be very costly and impractical to force manufactures to apply these standards to all ULDs	Clearly separate requirements for ULDs and FRCs	Concur with Suggested Change. Non-Concur with Comment; the quoted regulations apply to cargo containers in the passenger or crew compartments (accessible spaces), and apply to installed equipment under Part 25. Most TSO-approved cargo articles are not installed aircraft equipment under Part 25, rather they are equipment in operational used under a carrier's cargo program. Reference disposition to

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					comment 13.
33.	Gabriella Tamasi	Section 3.d., page 2	Flammability (paragraph d. FRC components)	Why is components used in this point whereas other points above remain more generic? I would suggest: FRC ~~components~~ shall meet all flammability requirements of AS8992 as modified by Appendix 3 of this TSO.	Concur. Use of the word "components" was removed during the re-write and in the new table in this section.
34.	Nordisk Aviation Products	Section 3.d., page 2	Not clear if all ULDs have to comply with Fire Resistant requirement	Make clear which requirements apply to 1 – ULD, 2 – FRC-ULD (AS8992), 3 – Pallet	Concur. See disposition to comment 13.
35.	Nordisk Aviation products	Section 3.d., page 2	- Shall it mean that Horizontal flammability requirement (Maximum 2.5/min) is not valid as minimum requirements. - What is the minimum flammability requirement for non-metallic parts other than Panels, doors, ceiling and net?	1- ULD (Min. requirement 14 CFR part 25, Appendix F, part I, paragraph (a)(2)(iv)) 2- FRC-ULD (TSO-C90e section 3.d) 3- Pallet (Min. requirement 14 CFR part 25, Appendix F, part I, paragraph	Non-concur with #1 and #3. The requirements in this TSO represents safety enhancements supported by many key stakeholders, including part of the SAE AGE-2 membership. Past TSO approvals are still valid and ULDs may continue to be manufactured under these approvals. Manufacturers

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				(a)(2)(iv))	who seek to improve flammability properties of their ULDs can apply for TSO-C90e. In addition per Note 4 in AS8992, most aluminum alloy pallets already meet improved flammability requirements to the requirement you listed in #3. See disposition to comment 13.
36.	Ulf Hartmann, Safran Cargo	Section 3.d., page 2	For standard ULDs these flammability requirements are not correct/acceptable as completely different from previous requirements which are defined in 14 CFR part 25, Appendix F, part I, paragraph (a)(2)(iv).	For ULDs, add the sentence "The materials used in ULDs must meet the appropriate provisions in 14 CFR part 25, Appendix F, part I, paragraph (a)(2)(iv).	Non-Concur. TSO-C90e increases the flammability requirements for materials used in the construction of ULDs. See disposition to comment 35.
37.	Ulf Hartmann, Safran Cargo	Section 4.a., page 2	Add the sentence in the next column to the end of 4.a., and delete introductory sentence to 4.b.	"Mark the ULDs in an area clearly visible after the article (or combination of article) is loaded with cargo. The marking must include:".	Concur. Added the following sentence to the end of 4.a. (which also replaces introductory sentence to 4.b.):

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					"Mark the ULD in an area that will typically remain visible after the ULD is loaded with cargo. In addition to the information ----required by 14 CFR 45.15b, the marking must include:"
38.	Ulf Hartmann, Safran Cargo	Section 4.b., page 3	Missing some marking requirements in the section applicable to all ULDs.	Add the following: 1) The name and address of manufacturer 2) The name, type, part number, or model designation of the article 3) The manufacturer's serial number of the article, with the option to add the date of manufacture 4) The applicable TSO number 5) The nominal weight of the article in the format: Weight: ___ kg (_____ lb) 6) The burning rate determined for the article under 3.d. of this TSO. 7) If applicable, mark the	Concur. Most of the items #1-#4 are required by 14 CFR 45.15(b), however several commenters desire to see requirements all spelled out in this list (as they were in TSO-C90d), thus they have been added. Items #7 has been added. Regarding #6, this no longer applies given the changes made to the flammability requirements in paragraph 3.d. Regarding #5, TSO-C90e the requirement to mark the

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				expiration date in the format "EXP YYYY-MM" 7(a) Mark the expiration date of a ULD as a limitation 7(b) Mark each component of subassembly, as described in paragraph 4.b. with its expiration date	article with a nominal weight has been removed from TSO-C90e. For operational airplane weight and balance control, some operators use the actual tare weight of the ULD. This tare weight is likely different than a single nominal weight marked on the TSO label for each ULD. The operational tare weight of the ULD is more accurate and likely to change over time. The actual tare weight can be controlled through an operators tare weight program. Marking both the tare and nominal weight on the same ULD causes a conflict and an operator may not alter the TSO marking. To resolve this conflict, the requirement to mark the ULD with a nominal weight has been removed from the TSO and operators can elect to mark the ULDs with a tare weight.

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39.	Ulf Hartmann, Safran Cargo	Section 4.b(1), page 3	Maintain marking requirements from TSO-C90d	Replace "The classification identifier per paragraph 3.5 of AS36100C" with " The identification of the article in the code system explained in: (a) In NAS 3610 Rev. 10, Paragraph 1.2.1, for Type 1ULDs. (b) In SAE AS 36100 Rev. A, Paragraph 3.5, for Type 2 ULDs.	Concur. Replacement made to align with language in TSO-C90d, per Suggested Change in previous column.
40.	Arjan van der Kraan, KLM Cargo, Gabriella Tamasi	Section 4, pages 2-3	In general, it is understood that the proposed TSO-C90e not only adds requirements specifically for FRC but also amends requirements for standard ULD; some requirements in Section 4 were drafted in a way that requirements for standard ULD and FRC are mixed, which would create confusion in interpretation and reference.	The requirements for all ULD (including FRC) and requirements for FRC only should be distinguishably separated so that it is clear and easy to comply with.	Concur. Headers in bold have been added to Section 4 to improve clarity.
41.	Jean Paul Leval	Section 4, pages 2-3	The proposed TSO-C90e in addition to specific requirements specifically for	The requirements for all ULD (including FRC) and	Concur.

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			FRC also amends requirements for standard ULD; some requirements in Section 4 were drafted in a way that requirements for standard ULD and FRC are mixed, which would create confusion in interpretation and reference. The requirements for all ULD (including FRC) and requirements for FRC only should be separated.	requirements for FRC only should be clearly separated.	See disposition to comment 40.
42.	Jean Paul Leval	Section 4, pages 2-3	1) The marking requirements for all ULDs and for FRC only should be clearly separated; the marking requirements for all ULDs should avoid referring to FRC standard.	Suggest listing all the required markings for all ULD followed by the list of required markings for FRC only. If the intention is to apply some requirements in AS8992 for all ULD, it would be more appropriated by extracting and listing them instead of referring to AS8992.	Partially concur. See disposition to comment 40. Requirements in AS8992 only apply to FRCs and due to their length and complexity, will remain in AS8992 at this time. SAE AGE-2 can consider combining standards to improve clarity. The TSO is not meant to reproduce all aspects of the SAE standards.
43.	Alexander Bayer, Lufthansa	Section 4, pages 2-3	Markings as : • Manufacturer • Type and part number	Add the markings which are mentioned into the comments	Partially Concur. Nominal Weight and Tare

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	Cargo		• Certification acc. NAS 3610 / AS 36100 • Tare weight • TSO number • FRC /NON FRC are recommended from our side to get clear information for maintenance and operation.		Weight are not included in the marking because Tare weight is repeatedly updated during operational use, and Nominal Weight may add confusion. See disposition to comment 38 - 40.
44.	Arjan van der Kraan, KLM Cargo Gabriella Tamasi Jean Paul Leval	Section 4.a., page 2	The following sentence from TSO-C90d was deleted: "*Mark the ULDs in an area clearly visible after the article (or combination of articles) is loaded with cargo.*" To prevent markings from being blocked during operations, it would be beneficial to retain the sentence but the wording could be improved to read "*The markings must be clearly visible even when the ULD is loaded.*"	Suggest the following sentence be added at the end of 4. a.: *The markings must be clearly visible, even when the ULD is loaded.*	Concur. Added to 4.a. "Mark the ULD in an area that will typically remain visible after the ULD is loaded with cargo".
45.	Arjan van der Kraan, KLM Cargo Gabriella	Section 4.b., page 3	It is noticeable that quite some TSO-C90d required markings are 'hidden' in 5.1.b of AS8992, which are not directly referred to in this TSO but through the requirement in this 4.b. (3) with	Suggest listing all the required markings for all ULD followed by the list of required markings for FRC only.	Partially concur. See disposition to comment 40 to comment 42.

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	Tamasi		reference to 5.3 of AS8992, which then refers to 5.1.b. Very complicated references. Again, the marking requirements for all ULDs and for FRC only should be clearly separated; the marking requirements for all ULDs should avoid referring to FRC standard.	If the intention is to apply some requirements in AS8992 for all ULD, it would be more appropriated by extracting and listing them instead of referring to AS8992.	A header has been added to clarify the marking requirements that are required of ULDs including FRCs, and requirements unique to FRCs.
46.	Frank Steinert	Section 4.b., page 3	14 CFR 45.15(b) is kept relatively general. Listing the minimum requirements in the TSO would therefore increase compliance to a global standard and would support easy identification of the unit.	I would recommend to include a list such as: "The marking must include: (1) Name and address of the manufacturer (2) The name, type, part number, or model designation of the article (3) The identification of the article in the code system explained in: (a) NAS 3610 Rev. 10, Paragraph 1.2.1, for Type 1 ULDs. (b) SAE AS 36100 Rev. C, Paragraph 3.5, for Type 2 ULDs (4) The manufacturer's serial	Partially Concur. See disposition to comments 38 and 39.

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				number of the article (5) The date of manufacture (6) The applicable TSO number (7) The nominal weight of the article in the format: Weight: _____kg (_____lb) (8) If the article is not omni-directional, the words "FORWARD", "AFT", and "SIDE" must be appropriately placed (9) The burning rate determined for the article under paragraph **3.d.** of this TSO (10) Any limitations or aircraft type restrictions	
47.	Ulf Hartmann, Safran	Section 4.b(3)., page 3	AS8992 is only applicable for FRC and NOT for standard ULDs. Replace 4.b(3). with the marking expiration	If applicable, mark the expiration date in the format " EXP YYYY-MM"	Concur. Replacement made as

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	Cargo		requirement in the next column.	(a) Mark the expiration date of a ULD as a limitation. (b) Mark each component or subassembly, as described in paragraph **4.b.** with its expiration date	indicated by the Suggested Change The specific requirement for an FRC to provide an expiration date has been moved to the new section 4.c., which requires FRCs be marked with a traceability code per AS8992 5.2 to 5.4.
48.	Tom Pherson	Section 4.b(3)., page 3	Applies only to FRC		Concur. See disposition to comment 47.
49.	Arjan van der Kraan, KLM Cargo Gabriella Tamasi	Section 4.b(3)., page 3	The proposed text requires traceability code for FRC to be equally applicable to all ULD, is it the intention? If Yes, it would be more reader-friendly by listing all the exact requirements rather than referencing to the FRC standard; if No, then as mentioned before, requirements for all ULD and requirements for FRC only should be listed separately. In addition, only paragraph 5.2 of		Concur. See disposition to comment 40 and 47.

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			AS8992 seems to be related to traceability code; paragraph 5.4 seems to be for FRC only.		
50.	Alexander Bayer, Lufthansa Cargo	Section 4.b(3)., page 3	Does this apply to the standard ULDs?	Should not be applicable for standard ULDs.	Concur. See disposition to comment 47.
51.	Maurice Thran, DoKaSch GmbH	Section 4.b(3)., page 3	It is unclear if the requirement applies to non-fire-resistant ULDs as well.	Clarification if the given requirements apply to non-fire-resistant containers as well.	Concur. See disposition to comment 47.
52.	Ulf Hartmann, Safran Cargo	Section 4.b(5)., page 3	Damage limits are NOT part of the TSO Marking Requirements. They are defined in the equivalent CMM. ONLY "an operational guideline/help" the allowable limits are shown on the ODLN, which is clearly marked as NOT airworthiness/serviceability related (ODLN is specified by IATA ULDB)		Concur. Section 4.b(5) deleted.
53.	Frank Steinert	Section 4.b(5)., page 3	Damage Limits marking on the ULD should not be part of the TSO certification. Damage limits are documented and approved as part of the CMM. The Operator may choose to apply stricter damage limits to a certain	I would recommend to delete 4.b(5).	Concur. Section 4.b(5) deleted

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			ULD (type) due to operating a mixed ULD fleet from different manufacturers or for weather resistance purposes.		
54.	Tom Pherson	Section 4.b(5)., page 3	Damage limits are contained in ODLN label which has been optional on ULDs but generally included. d: Applies only to FRC.	Clearly separate requirements for ULDs and FRCs	Concur. Section 4.b(5) deleted
55.	Frank Steinert	Section 4.c., Page 3	There seem to be a few extra words in the sentence.	I would recommend changing the sentence to: "FRCs must be marked per the requirements in paragraphs 5.1.a and 5.1.c of AS8992."	Concur. This paragraph has been updated: "FRCs must also be marked per the requirements in paragraphs 5.1.a, 5.1.c, 5.2 to 5.4 of AS8992."
56.	Chris Browne, Amsafe Bridport	Section 4.d., page 3	Marking "Fire Containment Compatible" could be misleading. Pallets and nets will only contain a fire with an appropriate fire containment cover.	Marking should be "FIRE CONTAINMENT COMPATIBLE WITH SAE AS6453 CERTIFIED FIRE COVER".- Rationale is increased clarity for end user.	Concur. Section now reads: "Refer to latest version of AS6453, *"Fire Containment Cover – Design, Performance, and Testing Requirements",* for testing requirements for pallets and nets that are operationally suited for use with a Fire Containment Cover (FCC) approved under TSO-C203 and SAE AS6453.

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					If the pallet or net meet the testing requirements in that standard, they may be marked under this TSO as follows: **(1)** Net: "FIRE CONTAINMENT COMPATIBLE WITH SAE AS6453 CERTIFIED FIRE COVER" in bold characters at least 40 mm (1.6 inch) high **(2)** Pallets (Non-Metallic): "FIRE CONTAINMENT COMPATIBLE" in legible characters "

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57.	Arjan van der Kraan, KLM Cargo Jean Paul Leval	Section 4.d. Page 3	There seem not to be any standards for or even products called "Fire Containment Compatible" pallet or net.	Suggest that 4.d. be deleted until the standards for "Fire Containment Compatible" pallet and net are available.	Non-concur. Standards for "Fire Containment Compatible" pallets and nets are in AS6453. See disposition to comment 56.
58.	Frank Steinert	Section 4.d., Page 3	There is no room on the edge rail of the pallet for 40mm tall letters. Further, assuming standard aluminum pallets, every pallet would be FCC compatible. The statement might be relevant for cargo nets when used in combination with a FCC.	I would recommend changing the sentence to "Mark applicable nets with "FIRE CONTAINMENT COMPATIBLE" in bold characters at least 40 mm (1.6 inch) high."	Concur. See disposition to comment 56. For pallets, the letter height has been replaced with the requirement that the words be legible.
59.	Gabriella Tamasi	Section 4.d., page 3	Mark pallet and nets with "FIRE CONTAINMENT COMPATIBLE" in bold characters at least 40 mm (1.6 inch) high	I do not believe there is sufficient space on pallets for 40mm markings that remains visible after the pallet has been loaded. What would happen to pallets already in use?	Concur. Refer to disposition to comments 56 and 58. The marking is an operational suggestion for non-metallic pallets.
60.	Tom Pherson	Section 4.d., page 3	If Pallet or Net is classified as FRC, then mark as "FIRE CONTAINMENT		Partially Concur.

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			COMPATIBLE" only after appropriate testing has been completed. It is possible that metallic pallets may not be Fire Containment Compatible and also possible that non-metallic pallets may be Fire Containment Compatible. Testing should be performed and nothing should be assumed.		Past industry and FAA testing has indicated that in instances of fire, non-metallic nets do not exhibit burn-through. Refer to disposition to comment 56.
61.	Ulf Hartmann, Safran	Section 4.d., page 3	Not all nets are qualified to be used with FCCs. And for pallets it is the opposite ➔ current pallets are all made from metal and thus qualified to be used in conjunction with a FCC. ONLY if a pallet is made from non-metal parts it should be marked as " NOT FIRE CONTAINMENT COMPATIBLE"		Partially concur. Refer to disposition to comment 56.
62.	Chris Browne, Amsafe Bridport	Section 4.d., page 3	Marking "Fire Containment Compatible" implies that any C90e net could be used with any fire containment cover. Fire Containment Cover suppliers certify the product as a system and introducing a new net to a suppliers system would likely invalidate any manufacturer's	Suggest this marking requirement is removed. Rationale is there is an inevitable clash between manufacturer warranty and end user interpretation of marking. If the marking needs to remain, suggest the marking	Concur with second half of suggested change. Refer to disposition to comment 56.

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				should read: "Marking should be "FIRE CONTAINMENT COMPATIBLE WITH SAE AS6453 CERTIFIED FIRE COVER". Rationale is increased clarity for end user.	
63.	Maurice Thran, DoKaSch GmbH	Section 4.d., page 3	It is unclear if this applies to all pallets and nets and if this is a "shall" our "should" requirement, since neither of those words are mentioned. Additionally, requirements to the number of markings. Their position, longevity, etc. are not given.	Clarification if this applies to all pallets and nets, further requirements (if there are any) regarding number of markings, position, longevity etc.	See disposition to 56. The FAA and SAE will take the suggestion to consider position and longevity marking requirements in the next revision of this TSO.
64.	Jay Burkett, Airbus	Section 4.d., page 3	*"d. Mark pallet and nets with "FIRE CONTAINMENT COMPATIBLE" in bold characters at least 40 mm (1.6 inch) high."* Airbus Comment: Does this requirement preclude the use of FCCs on pre TSO C90e aluminum pallets?	Please clarify this requirement.	See disposition to comment 56 and 65.
65.	Nordisk Aviation products	Section 4.d., page 3	- Is it applicable to all Pallets (FRC and non-FRC)? Or only to FR net? - If the pallet is made from Aluminum, is there requirement to add text "FIRE CONTAINMENT COMPATIBLE"?	- Clarify how the pallets produced under earlier TSO shall be marked in order to be used with certified pallet net and & fire containment cover(FCC)	Pallets produced under earlier TSO revisions cannot be held to any new requirements under TSO-C90e applies for a TSOA under TSO-C90e.

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					Work directly with operators to determine their requirements for using pallets produced under earlier TSOs with TSO-approved FCCs. AS6453 provides guidance that maybe helpful to operators, in particular section 4.2.1 Note: 4 Refer to disposition of comment 56.
66.	Chris Browne, Amsafe Bridport	Section 4	No requirement to mark the expiry date of the item.	Add requirement "If applicable, the expiration date in the format 'EXP YYYY-MM' must be marked on the ULD. Rationale is textile items have a usable life and this needs to be communicated to the end user.	Concur. See disposition to comment 38 and 47.
67.	Tom Pherson	Section 5	a(1): The CMM includes all repair and maintenance instructions. Operating Instructions are generally published by the owner of the unit. a(2): I don't understand concept of deviations. It either meets specifications		Commenter did not suggest specific changes. Some additional clarifications: a(1): The CMM is expected to serve as a set of interface

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			or it doesn't. a(3): I do not understand "Installation or operational use of this article requires separate approval" A ULD has only one purpose which is to transport cargo. What additional approvals can be given or might be necessary?		requirements to ensure the end user knows how to safely operate the equipment. a(2): Deviations to the TSO are allowed per 3.e.; a summary of these deviations is a requirement of all TSOs. a(3): A TSO only approves the design and production of the article; the decision to use the article lies with the operator.
68.	Arjan van der Kraan, KLM Cargo	Section 5, pages 3-4	Throughout the section, "ULD or FRC" may create the misunderstanding that FRC is not ULD.	Change "ULD or FRC" to read "*ULD including FRC*" to avoid misunderstanding	Concur. Replacement made as suggested.
69.	Gabriella Tamasi	Section 5, pages 3-4	Throughout the section, "ULD or FRC" may create the misunderstanding that FRC is not classified as a ULD.	Change "ULD or FRC" to read "*ULD including FRC*" to avoid misunderstanding	Concur. Replacement made as suggested.
70.	Jean Paul, LEVAL	Section 5.d., page 4	It should be indicated that Order 8150.4 is mainly for temperature control system purpose and do not cover all the non-TSO functions such as fire suppression system, wireless tracking devices attached to ULD.	Change "ULD or FRC" to read "ULD including FRC" to avoid misunderstanding.	Non-Concur. Suggested change does not match the comment. See disposition for comment 68 and 71.

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71.	Arjan van der Kraan, KLM Cargo Gabriella Tamasi	Section 5.d., page 4	It should be noted that Order 8150.4 is mainly for temperature controlled systems and does not cover all the non-TSO functions such as fire suppression systems and wireless tracking devices attached to ULD.		Concur. Added the underlined text to the following sentence to make the scope of the order clear. "Reference Order 8150.4, *Certification of Cargo Containers With Self-Contained Temperature Control Systems (Active ULDs)*, dated August of 2007, for requirements that address common ULD non-TSO functions <u>related to temperature controlled ULDs.</u>"
72.	Frank Steinert	Appendix 1, page 7, Reference to paragraph 3.8 of NAS3610	Section 3.5.4 of AS8992 applies to FRCs. It might be wrong to apply this to standard ULDs as well.	I would recommend adding words to differentiate between ULDs and FRCs.	Concur. Deleted the row, to preserve original reference to paragraph 3.8 of NAS3610 applicable to Type 1 ULDs
73.	Tom Pherson	Appendix 1, page 7,	"Replace with paragraph **3.5.4-3.5.6** of AS8992" only applies to FRC containers		Concur.

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		Reference to paragraph 3.8 of NAS3610			See disposition to comment 72.
74.	Ulf Hartmann, Safran Cargo	Appendix 1, page 7, Reference to paragraph 3.8 of NAS3610	This applies only to FRCs.	For standard ULDs the definition of NAS3610 has to remain.	Concur. See disposition to comment 72.
75.	Ulf Hartmann, Safran Cargo	Appendix 1, page 7, Reference to paragraph 3.9 of NAS3610	The tolerances for dimensions apply	Do not disregard.	Concur. Removed the "Disregard" statement.
76.	Arjan van der Kraan, KLM Cargo Gabriella Tamasi Jean Paul Leval	Appendix 2, page 8	To be redrafted due to referencing to outdated version of AS36100	To be redrafted with reference to SAE AS 36100C dated September 2020	Concur. Correction made.
77.	Frank Steinert	Appendix 2, page 8	The reference to AS36100B is outdated	Replace AS36100B with AS36100C, dated September 2020	Concur. Correction made.
78.	Maurice Thran,	Appendix 2, page 8	AS36100B is referenced.	Reference AS36100C.	Concur.

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	DoKaSch GmbH				Correction made.
79.	Ulf Hartmann, Safran	Appendix 2, page 8	AS36100C is already published	Reference AS36100C	Concur. Correction made.
80.	Chris Browne, Amsafe Bridport	Appendix 2, page 8	Section 3 references AS 36100C, Appendix 2 references AS 36100B.	Suggest both are AS 36100C. Looks like a typo.	Concur. Correction made.
81.	Arjan van der Kraan, KLM Cargo Gabriella Tamasi Jean Paul (LEVAL)	Appendix 2, page 8	AS36100C no longer contains references to EASA, Japanese Airworthiness Standard, and CAAC.	The paragraph of "Disregard references to EASA ……" be deleted because SAE AS36100C doesn't contain such references.	Concur. Correction made.
82.	Ulf Hartmann, Safran Cargo	Appendix 2, page 8, reference to paragraph 4.4	To provide the required strength in the pallet/net attachment it is important that the devices meet the specified design requirements. The other parts can be disregarded	Remove disregard statement.	Concur. Correction made.
83.	Frank Steinert	Appendix 2, page 8, reference to	Section 3.5.4 of AS8992 applies to FRCs. It might be wrong to apply this to standard ULDs as well.	I would recommend words to differentiate between ULDs and FRCs.	Concur. Replacement of AS36100C

External Public Review Comment Matrix

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AIR-623	TSO-C90e Unit Load Devices	**Jamie Lessard**		

	Commenter	Section # and Page #	Comment	Suggested Change and Rationale	Disposition
		paragraph 4.8			paragraph 4.8 with Section 3.5.4 of AS8992 has been withdrawn.
84.	Ulf Hartmann, Safran Cargo	Appendix 2, page 8, Reference to paragraph 4.8	This applies ONLY to FRCs.	For standard ULDs the definition of AS36100 has to remain	Concur. See disposition to comment 83.
85.	Tom Pherson	Appendix 2, page 8, Reference to paragraph 4.8		"Replace with paragraph **3.5.4-3.5.6** of AS8992" only applies to FRC containers	Concur. See disposition to comment 83.
86.	Ulf Hartmann, Safran Cargo	Appendix 2, page 8, Reference to paragraph 4.4			
87.	Tom Gahan, SATCO	Appendix 2, page 8, Reference to paragraph 4.8	Paragraph 4.8 should not be replaced with 3.5.4 to 3.5.6 of AS8992; AS8992 ought to also refer to paragraph 4.8 of AS36100C		Partially concur. See disposition co comment 83. AS8992 paragraphs 3.5.4 to 3.5.6 have specific requirements unique to FRCs as developed by AS8992 by consensus, that will remain in the TSO at this time.

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88.	Ulf Hartmann, Safran Cargo	Appendix 2, page 8, Reference to paragraph 4.9	The tolerances for dimensions still apply.	Remove "Disregard".	Concur. Correction made.
89.	Arjan van der Kraan, KLM Cargo Gabriella Tamasi	Appendix 3. page 9	CAAC stands for Civil Aviation Administration of China	Replace "Civil Aviation Agency of China" with "Civil Aviation Administration of China"	Concur. Correction made.
90.	Arjan van der Kraan, KLM Cargo	Appendix 3, page 9	Last row of the table requires that when reading AS8992 Section 5, replace with Section 4 of this TSO; however section 4 of this TSO refers back to AS88992 Section 5, which is not reader/user friendly.		Concur. In order to remove the circular reference, replaced "Replace with section 4 of this TSO for making requirements" with "ULDs classified as FRCs must meet the marking requirements of this section in addition to sections **4.a.** and

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					4.b. of this TSO. Disregard Section 5.1.b of AS8992, as it is duplicative to Sections **4.a.** and **4.b.** of this TSO"
91.	Tom Gahan, SATCO	Appendix 3, page 9	Appendix 3 states "When reading AS8992 Section 5, replace with Section 4 of this TSO for marking requirements". Which is it?	Clarify.	Concur. See disposition to comment 90.
92.	Nordisk Aviation products	Appendix 3, page 9	- How shall we interpret section 5 in Appendix 3? (loop reference?) i.e. TSO-C90e section 4.b(3) & 4.c refers to AS8992, but TSO-C90e appendix 3 replaces it!	Please clarify.	Concur. See disposition to comment 90.
93.	Tom Pherson	Appendix 3, page 9, Reference to paragraph 4.1.2 of AS8992	Add this sentence: "The minimum thickness of aluminum bases previously tests was 0.25 inches." This is factually incorrect. In any case, to claim compliance with FRC specifications, pallets made from any material should be tested to the specifications.		Concur. Note has been deleted, as it pertains to FAA aluminum sheet testing to meet a different regulatory requirement.
94.	Frank Steinert	Appendix 3, page 9, Reference to paragraph 4.1.2 of AS8992	I am not aware of ULDs and pallets with base sheet thickness of 0.25 inch (6.35 mm)	I would recommend verifying this number as typical base sheet thicknessed range from 0.106 to 0.157 inch (2.7 to 4.0 mm)	Concur. Refer to disposition to comment 93.

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95.	Maurice Thran, DoKaSch GmbH	Appendix 3, page 9, Reference to paragraph 4.1.2 of AS8992	Regarding "Paragraph 4.1.2 NOTE: […]": It is unclear if the addition of the note stating that aluminum bases with a base sheet thickness of 0.25 inches passing the flammability requirements implies that any aluminum base sheet < 0.25 inches in thickness needs to be tested accordingly.	Clarification on the requirement of testing of aluminum base sheets with a thickness of < 0.25 inches.	Concur. Refer to disposition to comment 93.
96.	Ulf Hartmann, Safran Cargo	Appendix 3, page 9, Reference to paragraph 4.1.2 of AS8992	Where is that thickness coming from??? There is not a single standard pallet with this sheet thickness. The standard pallet thickness is between 0.118" and 0.157". FRC test have also been performed with base sheet thickness of 0.098" and still met the max. temperature requirements of AS8992	Remove note	Concur. Refer to disposition to comment 93.
97.	Nordisk Aviation products	Appendix 3, page 9, Reference to paragraph 4.1.2 of AS8992	- Unclear why text specifies "minimum thickness of Base sheet previously tested 0.25 Inches (6.35mm)" are needed?	Please clarify	Concur. Refer to disposition to comment 93.